

AUSTRALIAN BEES IN THE QUEENSLAND MUSEUM.

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HYLEOIDES Smith.

Hyleoides striatula n. sp.

Female. Length about 12 mm., anterior wing 10 mm.; clypeus with a very broad orange band, broadest above, where it includes the whole width of clypeus, but ending abruptly some distance before the lower margin; two small transversely elongate orange spots on lower margin of supraclypeal area; lateral face-marks apparently paler, large, cuneiform; antennae black, the flagellum faintly brownish beneath, extreme apex bright ferruginous; thorax and tegulae entirely black; costal-field of anterior wings broadly dark fuliginous; legs black, anterior and middle tibiae rufous in front, middle femora with a suffused red stripe, tarsi reddened at apex; first two abdominal segments entirely black; third orange suffused with red, the base black, with an angular projection in middle line and on each side, the projection of black in middle line approaching a narrow stripe from the hind margin, tending to divide the orange into two parts; fourth segment with two very large transverse orange patches, shaded with red outwardly; fifth black with an obscure orange mark on each side; sixth black; third ventral segment broadly margined with creamy white; first ventral segment nodulose, only about half depth of second, the latter basally truncate, with a broad smooth surface. It also differs from *H. concinna* (Fab.) by the distinctly shining mesothorax, with very minute punctures, and scattered large ones; by the strongly punctured scutellum; by the area of metathorax being distinctly striate in the middle above, and with its posterior face narrower, its outline like that of a convolvulus; by the shining finely punctured first two segments of abdomen, and by the clypeus being very delicately and densely longitudinally striate all over.

Kuranda, Queensland (*Dodd*). One female. A very distinct species, easily known by the sculpture and colour pattern.

Hyleoides bivulnerata n. sp.

Female. Length nearly 11 mm.; clypeus cream colour, with the lower margin black, and with a broad ferruginous band along each side except the upper part; lateral face-marks cuneiform, cream coloured, rather small, not extending below middle of clypeus; face narrowed below; scapa red, flagellum black; upper border of prothorax red, swollen and elevated, but tubercles black; a more or less semilunar red mark behind each tubercle; scutellum with two round red spots; postscutellum black; tegulae piceous; costal region of wings fuliginous as usual; anterior femora swollen; anterior tibiae mainly dark red; anterior tarsi peculiar, with much stiff

brush-like pale hair; middle and hind legs dark red clouded with black; abdomen with weak rather sparse punctures, the surface feebly shining; first segment red, with the base broadly black, and the hind margin at sides cream colour; second segment very large, and black; third red, black at extreme base, and marked with cream colour apically, especially at sides; remaining segments pale dull red; third ventral segment with a very broad white band, abruptly contracted at sides. It also differs greatly from *H. concinna* by the extremely large and coarse, and partly confluent punctures on mesothorax; the strong punctures on the shining scutellum; the area of metathorax with a pair of large obtuse tubercles; and the clear hyaline wings, aside from the dark costal region of anterior pair. The sculpture of the mesothorax is practically as in *H. waterhousei* Ckll. From *H. concinnula* Ckll. it is easily known by the dark tegulæ, scutellum with only red spots, &c.

Type from Darra, Brisbane, 26-10-15 (*Hacker*). Also one marked Brisbane, 23-11-15 (*Hacker*). The latter differs in having the ferruginous clypeal bands extending nearly to top of clypeus, and marked with a line of black, and in having a small red band along lower margin of supraclypeal area.

REEPENIA (Frieze).

Reepenia eboracina (Cockerell).

A male from Gordonvale, North Queensland (no collector's name given), agrees with the type, which is from Cape York. The insect possesses a very remarkable character, hitherto overlooked; the hind wings have a well-developed dark elongate-lanceolate stigma, not far from the apex. It is to be presumed that the same occurs in *R. variabilis* (Frieze), the type of the genus, and I think I am accordingly justified in giving *Reepenia* full generic rank. It has hitherto been treated by Frieze and myself as a subgenus of *Nomia*. The Australian *Tetralonia brevicornis* Smith is doubtless to be called *Reepenia brevicornis*.

NOMIA Latreille.

Nomia aurantifer swainsoniæ n. subsp.

Female (Type). Like *N. aurantifer*, but with a pale orange band, broadly interrupted in middle, on first abdominal segment; mesothorax and scutellum with short pale grey, and larger fuscous hair; hair of legs largely dull white, but black on outer face of middle tibiæ, hind knees, &c.; wings dusky subhyaline, with the apical margin broadly darkened; hair at sides of first abdominal segment white; dense apical fringe on fifth segment dark chocolate, almost black; venter with white hair.

Male. Similar, except for the usual sexual differences. Flagellum very long, strongly crenulated, black; mandibles chestnut-red in middle; face and front densely covered with cream-coloured hair; mesothorax with much soft pale-grey hair; tegulæ largely reddened; knees and large part of hind tibiæ dark red; hind trochanters with an apical tuft of short red hair; hind femora flat beneath, and

evidently swollen subapically; hind tibiæ swollen, with a large apical finger-like projection but no spurs; abdomen with five orange bands, the first very slender and obsolescent in middle.

National Park, Queensland, December, 1919, both sexes at flowers of *Swainsonia galegifolia* R.Br. (*Häcker*). According to the Index Kewensis, *S. galegifolia* is a synonym of *S. coronillæfolia* Salisb. The four specimens before me (two of each sex) indicate that this is a distinct subspecies of *Nomia aurantifer* Ckll., 1910 (syn. *N. luteofasciata* Friese 1917).

***Nomia dimissa* n. sp.**

Male (Type). Like *N. australica reginæ* Ckll., but smaller and more slender (length about 10.5 mm.), with hyaline wings, faintly dusky at apex; hair of face white, hardly perceptibly yellowish; abdomen dark blue; hind tibiæ, seen from behind, with the inner margin strongly angulate below the middle; anterior lobe of hind tibiæ much more broadly truncate. This is not *N. australica regis* Ckll., from which it is at once known by the flagellum being ferruginous beneath, and the abdominal hair-bands strongly yellow.

Female. Length about 10 mm., robust, like *N. australica reginæ*, but smaller, with a large red patch (triangular to subquadrate) on mesothorax in front. Clypeus black or with a very faint reddish stain; flagellum clear ferruginous beneath; disc of mesothorax shining; abdomen very dark, the hair-bands whitish, slightly stained with orange.

Cairns District, Queensland (*F. P. Dodd*). 2 ♀, 1 ♂. These are associated because they come from the same region and collector, but it is peculiar that the male wholly lacks the red mark on mesothorax, whereas I have a male *reginæ* from Kuranda (*Turner*) which has it, though it is dull and inconspicuous. From the size and the colours of the abdomen, this male *reginæ* cannot well be associated with the above females.

***Nomia kurandina* Cockerell.**

Logan Road, Brisbane, 18-9-11 (*Häcker*). One female.

CROCISA Jurine.

***Crocisa waroonensis* Cockerell.**

Two males, Swan R., W. Australia (*J. Clark*).

ANTHOPHORA Latreille.

***Anthophora pulchra* Smith.**

The abdominal bands vary greatly in colour. It would be interesting to determine whether the colours are at all uniform in any one colony:—

- (a) Bands turquoise blue. Female, Brisbane (7-12-15, *Häcker*). Recalls *A. chlorocyanea* Ckll.

- (b) Bands pale emerald green. Stradbroke Island ; both sexes (5-12-13, *Hacker*).
- (c) Bands pale brownish golden, with a few emerald-green hairs. Stradbroke Island ; male (3-12-12, *Hacker*).
- (d) Bands white tinged with brownish, the fourth pure white apically. Female. Tambourine Mountain (28-12-11, *Hacker*).

The specimen from Brisbane (*a*) also resembles *A. chlorocyanea* in having the hair of thorax above appearing pallid greyish, not strongly reddened ; but the legs are as in *pulchra*. The scape in female *chlorocyanea* is entirely black ; in *pulchra* (including *a*) it has a yellow stripe or mark.

***Anthophora lilacine* n. sp.**

Like *A. cingulata* Fab. (*emendata* Sm.), but abdominal bands pale lilac, the first two in the male suffused with ochreous. At first sight this appears to be a mere colour variation, but the fifth ventral segment of the male abdomen has a deep broad rounded emargination, instead of the very shallow one of *cingulata*. The hair on outer side of hind tibiæ is rich orange-fulvous, more or less white at apex.

Kuranda (*Dodd*). Both sexes ; the male is the type.

PROSOPIDIDÆ.

***Prosopis sculptifrons* n. sp.**

Male (Type). Length about 11.5 mm. ; robust, black, with cream-coloured markings on head and legs, and bright orange markings (tubercles, scutellum, and postscutellum) on thorax. Head very broad, entirely cream-colour on face below antennæ, and lateral face-marks extending nearly to top of orbits, ending very obtusely away from orbits, while the supraclypeal mark is triangularly extended upward between the antennæ ; labrum light, and mandibles with an elongate light mark sometimes broken into two ; scape greatly swollen, broadly cream-colour in front, flagellum dusky chestnut-red beneath ; mandibles small bidentate ; front with a very strong keel, on each side of which is a deep sulcus for the scape to rest in ; the frontal keel, in a less elevated form, extends downward, to flatten out on apical part of clypeus ; supraclypeal area enormously extended laterally, bounding upper part of sides of clypeus, and its convex sides invading the region of lateral marks, and approaching the orbits ; vertex and lower part of cheeks with dark hair ; mesothorax rather finely and closely punctured, but shining between the punctures ; scutellum finely punctured, with a faint median groove ; area of metathorax without evident sculpture ; metathorax obtusely subtuberculate on each side of truncation ; wings dusky, darker in marginal cell and at apex, stigma and nervures piceous ; b.n. arched, meeting t.m. ; second s.m. very long, receiving the recurrent nervures not far from base and apex ; tegulæ black ; anterior and middle femora broadened, largely cream colour in front ; anterior and middle tibiæ, anterior basitarsi, and middle basitarsi in part cream colour in front ; abdomen shining, finely punctured ; no ventral tubercles.

Female. Looks just the same, seen from above, but the legs, scape, mandibles, and labrum are entirely black, the flagellum also is black, while the light area on face is bright orange, and is confined to a hat-like supraclypeal mark, and a broad pyriform area on clypeus, including its whole upper end, narrowing below, and ending very obtusely just above clypeal margin.

National Park, Queensland, Dec., 1919, four of each sex (*Hacker*). I thought this might be a *meroglossa*, but the second segment of the female abdomen has not the *meroglossa* base, and the male has not the pointed *meroglossa* tongue, but is a pollen-eater, as a microscopic preparation shows. The female *Palæorhiza*, and doubtless also *meroglossa*, feed on pollen, but the male must be a nectar-feeder. Thus the differences in the tongue are apparently adaptive.

The female *P. sculptifrons* runs in my table of Australian *Prosopis* (*Ann. Mag. Nat. Hist.* Feb. 1910) to *P. morosa* Smith, to which it is closely allied, differing by the flagellum not being fulvous beneath, and the apical margins of the abdominal segments not discoloured. *P. morosa* is a Southern species from Victoria. Its male is unknown.

Prosopis certa n. sp.

Male (Type). Length about 8 mm. ; black, robust, with the whole face below antennæ, and lateral face-marks ending a short distance above (on orbits, at an angle of about 50 degrees), large spot on labrum, tubercles, scutellum, and postscutellum, all very bright lemon-yellow ; face broad ; mandibles black ; tongue very broad and emarginate ; cheeks with white hair ; scape ordinary, black, punctured ; flagellum long, submoniliform, red beneath ; face dull and pitted ; mesothorax dull and coarsely punctured ; tegulæ piceous with a small pale-yellow spot ; wings hyaline ; b.n. falling short of t.m., first r.n. meeting first t.c., second s.m. long ; anterior tibiæ broadly, and middle ones narrowly, fulvous in front ; all the basitarsi white ; under side of thorax hoary with white hair ; abdomen shining but rough, with punctures of two sizes ; a strong constriction at junction of first and second segments ; apical margin of first ventral segment slightly elevated in middle.

Female. Similar, differing thus :—Labrum entirely black ; face-marks confined to broad lateral marks, their upper ends very broad and rounded, a short distance above level of antennæ ; legs black, with anterior tibiæ fulvous in front ; first r.n. joining first s.m. a little before its end ; end of abdomen with black hair. The second abdominal segment is irregularly punctured, the punctures of different sizes.

Brisbane (*Hacker*). Type male 10-10-16 ; female 12-2-18. In my table, the male runs to 51, and falls with *P. elongata* Sm., from which it is easily separated by the sculpture. The female runs out at 53, disagreeing in the form of the lateral face-marks.

Prosopis daveyi n. sp.

Female. Length about 9 mm. ; black, robust, with large lateral face-marks, tubercles and very large areas on scutellum and postscutellum very brilliant orange ; flagellum ferruginous beneath. The lateral face-marks fill the space between the high

narrow clypeus and the eye, and are squarely truncate at level of antennæ, except that there is a short projection on the outer side, along the orbit; clypeus with shallow punctures; mesothorax densely punctured, but shining on disc; mesopleura rather sparsely punctured; orange area on scutellum broadly triangular, the corners obtuse; postscutellum orange except at extreme sides; tegulæ black; wings greyish hyaline; b.n. meeting t.m.; second s.m. receiving the recurrent nervures very near base and apex; legs black; abdomen moderately shining, finely and regularly punctured, the punctures rather sparse on first segment, denser on second, very close on third; black hair at sides of apex. Base of metathorax rugose.

"Bright V." (*H. W. Davey*). Very close to *P. simillima* Sm., but the face-marks differ, and the face is broad, while the scutellum is only partly yellow.

***Palæorhiza viridifrons* n. sp.**

Female. About 9 mm. long or rather over, robust; black, with the front, mesothorax, metathorax, and mesopleura green and purple, the metallic colour only conspicuous under a lens; first abdominal segment bluish green, especially the depressed shining hind margin; head without light markings; flagellum dusky ferruginous beneath; scutellum (but not axillæ), postscutellum, tubercles, and a very large patch behind them, all bright orange; clypeus elongate, longitudinally striate, and sparsely irregularly punctured; a shining area on each side between antennæ and eyes; front densely punctured; ocelli in a triangle; mesothorax densely and distinctly punctured; area of metathorax beautifully green and purple, without evident sculpture; tegulæ black; wings brownish, stigma ferruginous, nervures fuscous; b.n. nearly meeting t.m.; second s.m. receiving both recurrent nervures, the first a considerable distance from base, the second bent strongly backward; legs black; abdomen shining, the first segment finely punctured, densely at sides, the third very much more closely punctured than the second, the latter also with a small dull punctureless area in basal middle; venter with coarse punctures. Hind spur simple.

Brisbane, 25-5-16 (*Hacker*). Although I have only the female, I am confident that this is a *Palæorhiza*. It runs in my key to *P. parallela* Ckll., from which it is easily known by the general colouration and the dark face.

The above new species, and others with yellow or orange on scutellum and postscutellum, may be separated by the following table. I include *Euryglossa aurantifera* Ckll., which was taken by Mr. Hacker at Brisbane, 8-10-18, as it superficially resembles the others. The specimen of *P. aureomaculata subnubilosa* taken by Mr. Hacker has the first recurrent nervure joining the apical corner of first submarginal cell, but the venation in this species is variable. Mr. Meade-Waldo (in litt.) expressed the opinion that *Prosopis nubilosa* Smith should be referred to *Palæorhiza*, with *subnubilosa* as a subspecies. The rediscovery of *Prosopis quadrata* Smith, described from "New Holland," is of interest. The specimen was taken by Mr. Hacker at Oxley, Brisbane, 17-9-14, at *Leptospermum* ? flowers. It has the minutely

reticulated area of metathorax described by Smith. The first recurrent nervure reaches the basal corner of the second submarginal cell, but this character doubtless varies. *P. elongata* Smith is certainly very close, and perhaps not a distinct species; I now have no *elongata* to compare.

An orange patch behind tegulate; no light marks on face; first abdominal segment	
metallic <i>Palæorhiza viridifrons</i> Ckll.	
No orange or yellow mark behind tegulæ	1.
1. Face with only minute light marks (National Park, Queensland, Dec., 1919, <i>Hacker</i>)	
<i>Prosopis nubilosella mediosticta</i> Ckll., ♀.	
Face with conspicuous light marks, or all light	2.
2. No lateral face-marks	<i>P. sculptifrons</i> Ckll., ♀.
With lateral face-marks	3.
3. Clypeus all dark	4.
Clypeus not all dark	5.
4. Mesothorax posteriorly closely punctured	<i>P. daveyi</i> Ckll., ♀.
Mesothorax posteriorly dull and sparsely punctured	<i>P. certa</i> Ckll., ♀.
5. Clypeus with only a light spot (National Park, Q., Dec., 1919, <i>Hacker</i>)	<i>P. aurcomaculata</i> Ckll., ♀.
Clypeus light, or nearly all light	6.
6. Scape entirely black	7.
Scape light in front	9.
7. Clypeus low and broad; abdomen slightly purplish; yellow patches above tubercles	
<i>Euryglossa aurantifera</i> Ckll.	
Clypeus high and narrow	8.
8. Lateral face-marks going above level of antennæ	<i>Prosopis certa</i> Ckll., ♂.
Lateral face-marks not going above level of antennæ	<i>P. quadrata</i> Smith.
9. Face very narrow; small species	10.
Face broad; large species	<i>P. sculptifrons</i> Ckll., ♂.
10. No supraclypeal mark (Brisbane, 6-10-14, <i>Hacker</i>)	<i>P. aurcomaculata subnubilosa</i> Ckll., ♂.
Supraclypeal mark present (Brisbane, 26-2-18, <i>Hacker</i>)	<i>P. aureomaculata</i> Ckll., ♂.

The following table separates a series of species which are at least partly metallic, and the scutellum and postscutellum are not yellow. The specimens of *P. albonitens* average larger than those from Mackay—

Thorax black; face entirely black (six from Bribie I., Nov. 1918, <i>Hacker</i>)	
<i>Prosopis cyancomicans nigrescens</i> Ckll.	
Thorax metallic	1.
1. Supraclypeal mark present (three from Stradbroke I., Sept. 17, 1915, <i>Hacker</i> ; one Bribie I., Jan. 1917, <i>Hacker</i>)	<i>P. albonitens</i> Ckll., ♂.
Supraclypeal mark absent	2.
2. Clypeus entirely dark; females (two from Stradbroke I., Sept., 17, 1915, <i>Hacker</i>)	<i>P. albonitens</i> Ckll.
Clypeus at least mainly light; males (Brisbane, 1-9-14 and 8-2-16, <i>Hacker</i> ; Stradbroke I., 2-10-11, <i>Hacker</i>)	
<i>P. disjuncta</i> Ckll.	

PARASPHECODES Smith.

Parasphecodes callomelittinus Cockerell, 1910.

This remarkable species was described from Melbourne. One from Bribie Island, 2-11-15 (*Hacker*), differs a little in having the tegulae reddish, not dark, and the stigma paler than in the type.

CALLOMELITTA Smith.

Callomelitta littleri Cockerell 1914.

Mr. Hacker collected three females and two males of *Callomelitta* in the National Park, Queensland, Dec., 1919. To my surprise, the females are *C. littleri*, and the males *C. nigrofasciata* Ckll., both described from Tasmania. In spite of the differences which led me to regard *nigrofasciata* as a distinct species, I can no longer doubt that it is the male of *littleri*.

MEGACHILE Latreille.

Megachile semiluctuosa Smith.

Mallee, Victoria (*H. W. Davey*). One female.

Megachile mackayensis Cockerell.

National Park, Queensland, Dec., 1919 (*Hacker*). Two females, which have a short line of red hair sublaterally on each side of second and third abdominal segments, in addition to the bright red hair of the apical three segments.

Megachile quinquelineata Cockerell.

Kuranda, Queensland (*Dodd*). One female.

Megachile sequior Cockerell.

Eidsvold (*T. L. Bancroft*). One male.

Megachile canifrons Smith.

Brisbane, 10-10-16 (*Hacker*). One male. Described from Western Australia, but the specimen from Brisbane agrees with the description. It also runs to *canifrons* in Meade-Waldo's table of Smith's species.

Megachile tasmanica Cockerell.

Brisbane, 10-10-16 (*Hacker*). This little species was described from Tasmania in 1916. The male from Brisbane exactly agrees with the type.

Megachile latericauda n. sp.

Male (Type). Length about 11 mm., expanse 17; black, with a large apical patch on inner side of anterior tibiae, and anterior tarsi entirely, bright ferruginous; head rounded, with broad vertex; eyes reddish; face narrow, covered with long white hair, that on upper part of clypeus tinged with yellow; mandibles black, strongly bidentate; vertex finely and densely punctured; antennae black, slender,

not at all expanded at apex (a character separating the species from the related *M. ferox* Sm.); vertex and disc of thorax, including anterior part of scutellum, with dark chocolate hair; hair of occiput, cheeks, thorax anteriorly and posteriorly and at sides, white; mesothorax finely and densely punctured; legs with white hair, fulvous on inner side of hind tarsi; spurs black; anterior tarsi moderately expanded, with a large white area in the middle posteriorly, presenting on the under side a large elongate black mark broadly surrounded by white; third joint also with an elongated lateral lobe; anterior trochanters pointed beneath; anterior coxæ densely covered with white hair in front, not spined; tegulæ black, closely punctured; wings dusky translucent; abdomen parallel-sided, closely punctured; first segment with long white hair; second and third with white hair-bands, broadly interrupted in middle; fourth with a bright ferruginous hair-band, failing at sides; fifth densely covered with bright-red hair, except at extreme sides; sixth without red hair, its transverse keel with two broad rounded lobes, the margins of which are more or less irregular or nodulose.

Female. Face with white hair, but some red hair at apex of clypeus and on mandibles subapically; mandibles tridentate, the outer face strongly grooved; clypeus simple and ordinary, very densely punctured; flagellum obscurely reddish beneath; conspicuous tufts of white hair next to the four corners of mesothorax, and pale hair along its posterior border; wings very smoky; legs entirely black; abdominal segments 1 to 3 with narrow (linear) white hair-bands, expanding into triangular patches at sides of first segment; fifth and sixth segments covered with deep coppery-red hair except at sides; ventral scopa entirely white.

Swan River, W. Australia, one of each sex (*J. Clark*). Near to *M. ferox* but easily separated by the male antennæ, which are like those of *M. erythropyga* Sm., a species having entirely different male tarsi. The female resembles *M. heliophila* Ckll., but differs by the colour of the hair at end of abdomen, the entirely opaque mesothorax, the much more finely punctured clypeus, and the minutely and very densely punctured supraclypeal area. The male carries numerous mites on the posterior part of thorax.

***Megachile ciliatipes* n. sp.**

Male. Length about 9 mm.; extremely near *M. kurandensis* Ckll., but differing thus:—No evident spot of pale hair in front of axillæ; no red or fulvous hair on disc of fifth abdominal segment; anterior tarsi incrassate, especially the basitarsus, and with a fringe of stiff white hair behind; middle tarsi (which in *kurandensis* have black hair on outer side and red on inner, with no white) with silky white hair on outer side, and a very long white fringe behind; hind tarsi with long white hair on each side. The anterior coxæ are spined; face and front densely covered with golden hair; cheeks with pure white hair, tinged with yellow on upper part; vertex and discs of mesothorax and scutellum with black hair; a conspicuous band of pale hair between mesothorax and scutellum; tegulæ black; wings dusky; abdomen with narrow pale fulvous hair-bands, disc of sixth segment above densely covered with fulvous hair.

Type (with pea-green eyes) from Brisbane, 9-4-18 (*Hacker*). Also one (with dark-red eyes, but otherwise the same) from Kuranda (*Dodd*).

***Megachile hæmatogastra* n. sp.**

Female. Length about 11.5 mm., robust, black; ventral scopa bright ferruginous, black on last segment and pale yellow at extreme base; abdomen finely punctured, not at all metallic, segments 2 to 5 with narrow entire fulvous hair-bands; eyes dark reddish; face and front with bright fulvous hair, not covering the clypeus; mandibles broad, dark reddish subapically; clypeus normal, except that the lower margin is thickened and somewhat elevated, and the upper part of disc is convex, highly polished and shining, sparsely punctured, while the lower part is distinctly longitudinally striate, with punctures between the striæ; lower part of supraclypeal area exposed and shining; antennæ black; cheeks with fulvous hair, vertex with black; mesothorax and scutellum finely and extremely densely punctured, the scutellum obtusely pointed at apical middle; thorax with fulvous hair, but short and black on disc of mesothorax, longer and black on scutellum (but a fulvous band between the two), and blackish on disc of mesopleura; tegulæ black; wings dusky; legs black, with partly pale and partly dark hair, on middle basitarsi; dark reddish on outer side, but clear red on inner; hind basitarsi broad, with very bright red hair covering inner side; hind tibiæ with short black hair on outer side, and whitish on inner.

Cairns District (*F. P. Dodd*). Very distinct from the known Australian species, and rather approaching *M. shortlandi* Ckll., from the Solomon Islands.

***Megachile mundifica* n. sp.**

Female. Length about 11.5 mm.; parallel-sided but rather robust; black, including legs, antennæ, and tegulæ; eyes blackish; head thick and rounded; sides of face, front, and the broad cheeks with abundant white hair; vertex with scanty brownish hair; mandibles broad, quadridentate, the base covered with appressed pale silky hair; clypeus coarsely and closely punctured, the middle with a very large squared excavation, within which are golden hairs, and on each side of which the margin has the aspect of a broad rounded lobe; vertex, mesothorax, and scutellum very closely and densely punctured, but glistening; scutellum and disc of mesothorax with red-brown hair; a tuft of clear white hair above the base of each wing; only a very faint hair-band (hardly noticeable) between mesothorax and scutellum; sides of thorax with white hair; wings dusky; legs with white hair, pale reddish on inner side of tarsi; hind basitarsi not broadened; abdomen with creamy-white hair-bands on first three segments, on first interrupted sublaterally and represented at sides by large triangular patches; from apical margin of fourth segment to end the abdomen is covered with pale fulvous hair, redder along margins of fourth and fifth segments; ventral scopa entirely white.

National Park, Queensland, Dec., 1919 (*Hacker*). Resembles *M. recisa* Ckll.,

known only in the male, but I feel confident that it is not that species. Among the known females it resembles *M. simpliciformis* Ckl., but the clypeus is entirely different.

GASTROPSIS Smith.

Gastropsis victoriæ rufocollaris n. subsp.

Male. Length about 14 mm.; face and front covered with bright ferruginous hair; eyes yellowish green; first three antennal joints clear ferruginous; scape somewhat swollen; mesothorax and scutellum somewhat metallic; anterior part of mesothorax with bright fox-red hair, abruptly separated from the black of the hinder part; anterior tibiæ red in front and black behind; abdominal segments 2 and 3 with white hair-bands along their posterior margins, failing in middle.

Mallee, Victoria (*H. W. Davey*). Two males. The position of *Gastropsis* has been in doubt, but it certainly belongs to the subfamily Diphaglossinæ.

STENOTRITUS Smith.

Stenotritus elegantior n. sp.

Female. Length about 16 mm.; similar to *S. elegans* Sm., but with the following special characters:—Head and thorax above metallic, with rich purple and green tints; hair of face and front fulvous, of cheeks white, contrasting; scape entirely bright ferruginous; legs with long white hair, pale brown on anterior tibiæ and tarsi (red on inner face of tarsi), brownish on middle tarsi and partly so on tibiæ, chocolate colour on inner side of hind tibiæ and tarsi (the basitarsi very broad); abdomen steel-blue, with white hair-bands, interrupted in middle, on first four segments; fifth segment with a heavy rusty-black fringe, the apical middle of which is bright red. The mesothorax and scutellum have black hair on disc, but the mesothorax anteriorly is broadly covered with white hair, having a faint creamy tint.

Queensland, "Hy. 330." From the label, I suspect it is a Turner specimen, from the Mackay region.

PARACOLLETES Smith.

Paracolletes melbournensis Cockerell.

"Bright V." (*H. W. Davey*).

Paracolletes carinatus Smith.

Kuranda (*Dodd*). One male. The very rich purple colour of abdomen may indicate a distinct race, as one would expect from the locality.

Paracolletes plumosus Smith.

"Bright V." (*H. W. Davey*). One female. Hamel, W. Australia, one male. The details of the venation are variable, but I cannot distinguish more than one species.

Paracolletes truncatulus Cockerell.

Stradbroke I., Queensland, 9-9-11.

Paracolletes obscurus Smith.

Kosciusko, 26-1-14 (*A. J. Turner*). The wings are not so brown as in specimens from Mt. Wellington, Tasmania.

Paracolletes chalcurus n. sp.

Female. Length a little over 12 mm.; head and thorax olive-green, bluish green on pleura and sides of face; clypeus strongly but rather sparsely punctured, black, with less than the upper third green; abdomen brassy yellow suffused with crimson, the hind margins of first four segments brilliantly crimson; mandibles black; scape black, long, and curved; flagellum ferruginous at apex, and beneath with the last three joints red and the others marked with red; hair of face, cheeks, and sides of thorax pale grey, of vertex long and blackish, of thorax above long and tinged with fulvous, especially laterally, but partly blackened on disc of mesothorax and scutellum, there being also a vague blackish transverse band from side to side anterior to the tegulæ; mesothorax roughened and closely punctate in front, but the disc posteriorly polished, with few punctures; scutellum polished anteriorly; area of metathorax transversely keeled, with two or three transverse sulci above the keel, but fine oblique and irregular striae or raised lines below it; tegulæ fulvous, wings hyaline; stigma bright amber colour, nervures dilute sepia; venation as described for *P. roseoviridis*; legs black, with small joints of anterior tarsi, middle and hind tarsi entirely, and hind tibiæ, all reddish; tibial scopa large and loose, whitish below, blackish above; abdomen without hair-bands; first segment with long dull white hair, in middle tinged with ochreous; apex with blackish hair, but tawny on each side of the apical plate, the sides of which are concave; venter with white hair.

Cunderdin, W. Australia, Nov., 1913 (*R. Illidge*). This is very like *P. roseoviridis* Ckll., described from a male about 8 mm. long, and it is possible that the two are sexes of one species. As there is so much difference in size, and the sculpture of the metathorax is not quite the same, I provisionally regard the present insect as distinct.

Paracolletes boroniæ n. sp.

Female. Length about 11 mm.; head and thorax black, abdomen peacock-green, quite brilliant and beautiful, with a rather satiny gloss; hair of head and thorax long, dorsally grey mixed with black, laterally and beneath mainly dull whitish, more or less blackened on clypeus and sides of face; mandibles black; clypeus shining, strongly and rather closely punctured; front dull, somewhat glistening at sides; antennæ black, clear red at extreme apex, and the flagellum very obscurely brownish beneath; mesothorax dull in front but the disc shining, with sparse punctures; area of metathorax dullish with an obtuse transverse ridge, but no keel or distinct sculpture; tegulæ piceous; wings dusky, stigma and nervures

piceous ; b.n. meeting t.m. ; first r.n. joining second s.m. considerably before middle ; legs black ; tibial scopa black above, white below ; abdomen without bands, first segment with thin white hair, apex with black hair, venter with white hair.

Brisbane, 5-9-16 (*Hacker*). Taken at Birkdale, on flowers of *Boronia ledifolia* Gay, much like *P. viridicinctus* Ckll., but the abdomen is quite a different shade of green. *P. viridicinctus* is a Tasmanian species. It may also be compared with *P. versicolor* Sm., but the hair on under side of abdomen is not at all yellow, and there are other differences.

Paracolletes regalis n. sp.

Male. Length about 10 mm. ; head and thorax black, abdomen shining deep rich purple, without hair bands ; hair of head and thorax dorsally rusty black, but on sides of face, cheeks, and sides of throat white ; mandibles black ; clypeus exposed, finely and regularly punctured ; antennæ long, black, the flagellum very faintly brownish beneath ; mesothorax and scutellum polished, with sparse punctures, weak on mesothorax ; scutellum with a shallow median sulcus ; area of metathorax without evident sculpture, dullish, except the obtuse transverse ridge, which is shining ; tegulæ dark reddish ; wings dusky, stigma and nervures piceous ; b.n. meeting t.m. ; second r.n. greatly narrowed above, receiving first r.n. in middle ; legs black ; abdomen with some black hair apically, and thin white hair on ventral surface.

Kuranda Queensland (*Dodd*). There is a strong brown cloud in the marginal cell and beyond, but it is not at all sharply defined. There is no such cloud in the related *P. recusus*, described below.

Paracolletes facialis n. sp.

Male. Length nearly 9 mm., slender ; head, thorax, legs, mandibles, antennæ (which are rather short for a male) and tegulæ black ; abdomen shining very dark purplish, with the depressed hind margins of segments more reddish ; vertex and discs of mesothorax and scutellum with black hair, but head and thorax otherwise with long white hair, at sides of face dense, appressed, and pure white ; clypeus thinly covered with long hair, but the convex shining distinctly punctured surface visible ; front dull ; mesothorax and scutellum shining, with very weak sparse punctures ; scutellum with a distinct median sulcus ; area of metathorax mainly shining, without a distinct transverse ridge, but with very delicate cross-striæ ; wings faintly dusky, nervures and stigma fuscous ; b.n. falling short of t.m. ; second s.m. not greatly narrowed above, receiving first r.n. much before the middle ; marginal cell obliquely truncate at end ; third s.m. very long ; legs with white hair ; end of abdomen with some black hair.

Coolangatta, Queensland, 15-8-16 (*A. J. Turner*). Resembles *P. regalis* in many respects, but easily separated by the wings. It is extremely like *P. nitidulus* Ckll., but that has a pure black abdomen.

Paracolletes plebeius n. sp.

Female. Length about 10 mm. or a little over; head, thorax, mandibles, and legs black, abdomen shining dark purplish; flagellum dusky chestnut red beneath, except at base; hair of vertex, mesothorax, and scutellum black, other hair of head and thorax white; hair at apex of abdomen black; clypeus somewhat shining but not polished, with scattered large punctures; disc of mesothorax shining, with very sparse feeble punctures; scutellum rather strongly but sparsely punctured, with a median sulcus; area of metathorax dull; tegulæ black; wings faintly dusky, not clouded, stigma and nervure dark reddish; b.n. meeting t.m.; second s.m. very broad below, receiving first r.n. at or a little before the middle; tibial scopa black above, white beneath; venter of abdomen with white hair.

“Bright V.” (*H. W. Davey*). Very near to *P. providus* Sm., but the head is smaller, the flagellum is differently coloured, and the dark purplish colour of the abdomen is quite different. From *P. frontalis* Sm. it is known by the colour of the scopa.

The next two species are very close to *P. plebeius*, so that at first I hesitated whether to consider them variations of a single species, or to consider all three races of *providus*. I believe, however, that they are really distinct.

Paracolletes incomptus n. sp.

Female. Length about 9 mm.; similar to *P. plebeius*, but smaller, surface of clypeus polished, antennæ entirely dark; wings shorter, quite strongly brownish; stigma with a dark margin, contrasting with the paler centre; scutellum quite without a median sulcus; area of metathorax shining on and below the transverse ridge, but above dullish, with a shallow median groove, and weak transverse striæ; abdomen dark greenish, the same colour as that of *P. providus*, but less polished.

Mundaring, W. Australia, Nov., 1913 (*R. Illidge*). This is easily known from *P. providus* by the smaller size and brownish wings.

Paracolletes recusus n. sp.

Female. Length about 10 mm.; similar to *P. plebeius*, with median sulcus on scutellum and hyaline wings, but antennæ black, surface of clypeus polished, and area of metathorax shining. The abdomen is broad, the segments basally black, with the broad apical margins dark greenish, suggesting the Tasmanian *P. viridicinctus* Ckll., which is, however, quite distinct. There is much resemblance to *P. hackeri* Ckll., from which it differs by the dull anterior half of mesothorax, the total absence of ochreous hair in front of tegulæ, the shining area of metathorax, and the differently coloured abdomen, the segments of which are more broadly depressed apically, and are not distinctly punctured as in *hackeri*.

Tambourine Mountain, Queensland, 27-10-12 (*Hacker*).

Paracolletes apicalis n. sp.

Female. Length about 8 mm., slender for a female; head, thorax, legs, and antennæ black; mandibles with a red subapical spot, and with the inner tooth very

slightly developed; tegulae black, with a brown spot; wings greyish, nervures and stigma piceous; first abdominal segment shining black, without evident punctures, the depressed apical margin chestnut-red; second to fourth segments chestnut-red, black at extreme sides (more widely on second), and the hind margins blackish (broadly black on fourth); fifth segment black, distinctly punctured, the depressed hind margin red, but covered with black hair; apical plate very broad, red in middle. Clypeus shining, strongly but not densely punctured; hair of head and thorax thin, dull white, but dark fuscous on scutellum, vertex, and more or less on mesothorax; front dull except along orbital margins, but laterad of the ocelli the surface is polished and impunctate; mesothorax and scutellum finely and closely punctured, the scutellum without any smooth spaces; area of metathorax with a subsericeous surface, with a delicate median keel, but no distinct transverse ridge or sulci, the surface under the microscope being minutely tessellated; b.n. falling a short distance short of t.m.; second s.m. receiving first r.n. beyond middle; third s.m. long; anterior tibiae and tarsi with red hair on inner side; tibial scopa thin, blackish above, white below; abdomen dullish, with white hair at sides, and a very imperfectly developed white hair-band on fourth segment, but fifth with black hair.

Swan River, W. Australia, Oct., 1919 (*J. S. Clark*). Not closely related to any known species.

***Paracolletes speculiferus* n. sp.**

Male. Length about 9 mm.; black, including legs, mandibles, and the thick moniliform antennae; hair of head and thorax dull white, dorsally grey or blackish; middle of front supraclypeal area and clypeus polished and shining, the front with a strong median keel, the supraclypeal area with a faint one, but the middle of clypeus broadly depressed, impunctate and without a keel. Resembles *P. incanescens* Ckll., from Brisbane, but differs thus:—Clypeus and front as just described; area of metathorax very distinctly transversely striate (as in *P. perpolitus* Ckll.); hind tarsi black; abdomen dull, especially basally, the surface microscopically tessellate, with scattered very fine punctures. The venation is nearly as in *P. incanescens*. The wings are greyish.

National Park, Queensland, Dec., 1919 (*Hacker*). One male. Known from *P. perpolitus* Ckll., by the entirely dark antennae, entirely black anterior tibiae, &c.

***Paracolletes nomadiformis* n. sp.**

Male. Length about 6.5 mm., abdomen clavate, with narrowed base. Head and thorax black, but lower edge of supraclypeal area, broad clypeal band, and lower part of clypeus broadly ferruginous; clypeus shining, with weak punctures; mandibles dark reddish; antennae long, entirely ferruginous, the flagellum not moniliform; front and vertex dull; sides of face and front with long pale fulvous hair; mesothorax entirely dull, with very little hair, except a dense fulvous patch at each anterior corner; tubercles covered with fulvous hair, and also scutellum and postscutellum, forming a large dorsal orange-fulvous patch, as in *P. flavomaculatus* Ckll.; area of metathorax dull, without evident sculpture; tegulae ferruginous; wings reddish, with a darker cloud in marginal cell and beyond; b.n. meeting t.m.,

first r.n. joining second s.m. before middle; stigma large, fulvous, nervures light fuscous; knees, tibiæ, and tarsi clear ferruginous, hind basitarsi very long; abdomen dull black, with first segment at base and very broadly at apex, and the remaining segments apically. fulvo-ferruginous.

Kuranda, Queensland (*Dodd*). A very distinct species, with the aspect of a *Nomada*. I have thought it permissible, in forming the specific name, to avoid a diphthong in the middle.

***Paracolletes aurescens* n. sp.**

Male. Length about 11 mm.; black, with the long (not moniliform) flagellum light fulvo-ferruginous beneath, the hind margins of the first five abdominal segments broadly reddish-testaceous, and the anterior and middle knees, anterior tibiæ in front and at apex, middle tibiæ at apex and base, hind tibiæ narrowly at apex and broadly at base, and all the tarsi, clear ferruginous. Apical half of mandibles dark reddish; face and front up to and surrounding anterior ocellus, densely covered with long orange-fulvous hair, the uppermost hairs forming a long erect fringe, concealing the lateral ocelli; cheeks with long white hair; thorax above with pale fulvous hair, becoming bright fox-red in front of tegulæ; posteriorly and on sides of thorax the hair is paler, but not white; disc of mesothorax and scutellum shining, with scattered rather small punctures; area of metathorax polished and shining, weakly transversely striate above; tegulæ clear ferruginous; wings clear, faintly dusky apically; nervures and the small narrow stigma dark fuscous; b.n. falling just short of t.m.; second s.m. very broad, receiving first r.n. before the end of its first third; legs with pale hair; anterior femora swollen, with a large oblong depression beneath; discs of abdominal segment with a good deal of pale ochreous-tinted hair; a long silvery-white fringe on each side of apical plate; venter with thin bands of pale fulvous hair.

Bribie Island, Queensland, 1-4-18 (*Hacker*). Allied to *P. colletellus* Ckll., but much longer. On account of the structure of the metathorax, it cannot be the male of *P. waterhousei* Ckll. It is also probably allied to *P. humerosus* Sm., but certainly not its male.

***Paracolletes fallax* n. sp.**

Female. Length about 9 mm.; black, punctured, looking like an *Halictus*, and with the basal nervure strongly arched. Hair of head and thorax short, prevailing greyish, light reddish on vertex and scutellum, and more or less on mesothorax, tubercles fringed with white hair; mandibles black, inner tooth small; head broad; clypeus broad and flat, with large oval punctures, which are densely placed in middle; front coarsely and very densely punctured; antennæ black, the short flagellum reddish beneath apically; mesothorax and scutellum densely and rather coarsely punctured, but shining between the punctures; postscutellum with a median tuft of spreading hair; area of metathorax with irregular oblique rugæ, especially at sides; tegulæ piceous, partly rufous on outer side; wings strongly dusky, nervures and stigma piceous; b.n. meeting t.m.; second s.m. receiving first r.n. in middle; marginal cell obliquely truncate at end; second s.m. broad, but third

a little broader above than second; anterior tibiæ and tarsi with red hair beneath; hind tibial scopa black or blackish above, white beneath; legs, black; abdomen closely and finely punctured; second segment depressed basally; hind margins of segments brown, the third and fourth with shaggy white hair-bands, placed submarginally, the second with bands at sides, and the first with only lateral patches; fifth segment with short fuscous hair, but the usual heavy fringe is absent; pygidial plate large, with convex sides.

Bribie Island, Queensland, 2-11-13 (*Hacker*). Related to *P. punctatus* Sm., but easily separated by the colour of stigma and nervures.

***Paracolletes scitulus* n. sp.**

Male. Length about 8 mm.; black, with hind margins of abdominal segments very obscurely reddish; anterior knees, apical part of femora in front, and their tibiæ in front, all clear ferruginous; middle femora reddened at apex, and their tibiæ at base in front; hind femora and tibiæ and all the tarsi black, except that basal half of anterior basitarsi is red, and the apical joint on all the tarsi is clear red; head broad, with shining white hair at sides of face; middle of front polished and shining (not at all so in *P. nitidulus* Ckll.), vertex also shining; supraclypeal area dull; clypeus convex finely punctured; antennæ long, not moniliform, flagellum (except basal joint) dark brown beneath; cheeks with long white hair; mesothorax dullish, with scattered very weak punctures, but posteriorly shining; scutellum polished and shining, impunctate in middle, with very weak punctures toward the side; area of metathorax convex, shining, without striæ or keel, but the surface is microscopically roughened; abdomen shining, with long white hair on first segment, but without bands; hair at apex pale reddish. There is long dull white hair at sides of thorax posteriorly.

Brisbane, Queensland, 25-9-19 (*Hacker*). One male. Resembles *P. speculiferus*, but easily separated by the clypeus. Superficially, it could be taken for *P. incanescens* Ckll., which also occurs at Brisbane, but the clypeus is different, and the b.n. falls short of t.e., instead of meeting it as in *incanescens*. In both, the first r.n. joins second s.m. in middle, and the tegulæ are alike in both, or perhaps rather redder in *scitulus*.

The following key will facilitate the separation of the species of *Paracolletes* recorded above:—

At least abdomen more or less metallic	1.
Non-metallic species	9.
1. Thorax metallic	2.
Thorax black	4.
2. Abdomen brassy, suffused with crimson; comparatively large species ..	<i>chalcurus</i> Ckll.
Abdomen olive-green	<i>Melbournensis</i> Ckll.
Abdomen blue or purple	3.
3. Mesothorax purple, with a green area on disc posteriorly	<i>carinaus</i> Smith
Mesothorax green	<i>plumosus</i> Smith.
4. Abdomen bright green	<i>boroniæ</i> Ckll.

Abdomen dark or purple	..	..	..	..	..	..	..	..	5.
5. Marginal cell and beyond with a strong brown cloud ; abdomen rich purple								<i>regalis</i> Ckll.	
Marginal cell, &c., not thus clouded	..	..	..	..	..	..	..	..	6.
6. Male, with brilliant white hair on each side of face	..	..	..	..				<i>facialis</i> Ckll.	
Females	..	..	..	..	..	..	..	..	7.
7. Antennæ with flagellum dull red beneath ; area of metathorax dull ; abdomen purplish								<i>plebeius</i> Ckll.	
Antennæ with flagellum dark ; area of metathorax shining	..	..	..	..	..	..	..	..	8.
8. Wings brownish ; scutellum with no median sulcus	..	..	..					<i>incomptus</i> Ckll.	
Wings clear ; scutellum with a shallow median sulcus	..	..	..					<i>recusus</i> Ckll.	
9. Abdomen with at least the middle segments red	..	..	..	..	..	..	..	..	10.
Abdomen with the middle segments not red	..	..	..	..	..	..	..	..	11.
10. Abdomen entirely red	..	..	..	..	..	..	..	<i>truncatulus</i> Ckll.	
Abdomen black at base and apex	..	..	..	..	..	..	..	<i>apicalis</i> Ckll.	
11. Abdomen clavate, with broad ferruginous bands	..	..	..					<i>nomadiformis</i> Ckll.	
Abdomen otherwise	..	..	..	..	..	..	..	..	12.
12. Face with bright golden-fulvous hair	..	..	..	..	..			<i>aurescens</i> Ckll.	
Face with largely black hair	..	..	..	..	..	..	..	<i>obscurus</i> Smith	
Face with white hair	..	..	..	..	..	..	..	..	13
13. Abdomen rough and closely punctured ; hind margins of segments broadly brown								<i>fallax</i> Ckll.	
Abdomen smoother and feebly punctured	..	..	..	..	..	..	..	..	14.
14. Clypeus ordinary, convex	..	..	..	..	..	..	..	<i>scitulus</i> Ckll.	
Clypeus depressed and polished in middle	..	..	..	..	..	..	..	<i>speculiferus</i> Ckll	